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(54) **SYSTEMS AND METHODS FOR NONINVASIVE BLOOD GLUCOSE AND OTHER ANALYTE DETECTION AND MEASUREMENT USING COLLISION COMPUTING**

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CPC G01N 33/4833; G01N 21/49; G01N 21/314; G01N 1/40
See application file for complete search history.

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(57) **ABSTRACT**

In a noninvasive system for detection/measurement of glucose and other analytes in a medium such as tissue, spectra from the medium are deconstructed into features. Conditioned features, which contain frequency components specific to glucose or the other analytes, are derived from one or more features by modulating a carrier kernel with the feature. The conditioned features are computationally collided with one or more Zyotons that are co-dependent with the conditioned features. One or more collisions amplify a property of the analyte e.g., energy absorbed by glucose in tissue from radiation directed to the skin. A gradient of several values of the amplified property, each value corresponding to a particular radiation pattern according to a spectroscopic tomographic sequence, is used to select a suitable projector curve, with which a representative amplified value is projected to an accurate estimate of the concentration of glucose or the other analytes, without needing personalized calibration.

22 Claims, 207 Drawing Sheets